Plymouth Hospitals NHS
NHS Trust

Venous Thromboembolism (VTE) Prevention Standard Operating Procedure

Date	Version
Jan 2016	V2

Purpose

This procedural document sets out the Trust's approach to managing the risk of Venous Thromboembolism (VTE) affecting inpatients and recently discharged patients who are assessed to be susceptible to the condition.

It is a Department of Health (DH) requirement that all inpatients should be assessed for risk of VTE (both deep vein thrombosis DVT and pulmonary embolism PE). DH expects that those identified as being at risk of developing VTE, according to the DH risk assessment document, should be provided with treatments to reduce the risk of VTE occurring. This is also the Trust's policy, where the same risk assessment document is included as page 2 of the Trust drug prescription and administration record. It is also present in other documents within the Trust, as appropriate to the discipline (eg surgical pre-assessment document), but the use of these alternative documents should be detailed on the prescription chart.

This document sets out the requirements for risk assessments to be carried out, the treatments to be provided in response to the risk assessment outcome and the requirements for training.

Who should read this document?

- **Trust Clinical Directors**: because they need to understand how the Trust is addressing this significant risk to inpatients. Also how their Directorate is performing in relation to VTE prevention measures.
- **Senior clinicians:** because they are responsible for the clinical safety of their patients and therefore need to be aware of the procedures for VTE risk assessment and prevention measures, together with treatment of inpatients should they develop VTE.
- **All clinical staff**: either because they are involved in the care of patients and need to understand the Trust's approach to reducing the risk of VTE or can assist in the education of patients regarding VTE risk and its prevention. It is everyone's responsibility to try and ensure patients are aware of the risk of VTE.

Key messages

- All inpatients (with specific exceptions – predominantly day cases) should receive a VTE risk assessment using the designated risk assessment tool, on admission to hospital or within 24 hours at the latest. This should be checked within 24 hours of admission – usually on the post take/admission ward round.
- Appropriate thromboprophylaxis (TP) should be offered to patients identified to be at risk for VTE.
- All inpatients should receive periodic re-assessments during their stay in hospital. In higher/changing risk conditions, these assessments should be most frequent.
- When a patient is suspected of developing a VTE, immediate steps should be taken to reduce the impact by appropriate investigation and treatment. Please see separate document relating to the investigation and management of VTE.

Accountabilities

Production	Tim Nokes, Consultant Haematologist and Chair of the Thrombosis Committee
Review and approval	Thrombosis Committee
Ratification	Medical Director
Dissemination	Head of Clinical Governance Systems
Compliance	VTE Prevention Team and Thrombosis Committee

Links to other policies and procedures
Investigation and Management of VTE SOP
Update On Venous Thromboembolism (VTE) Prophylaxis on Pencarrow and Penrose ICU post NICE clinical guideline 92
Antenatal Guidelines no.38 Thromboembolism in Pregnancy

Version History		
v1.0	July 2012	First version, compiled in accordance with NHSLA minimum expectations
v2.0	December 2015	Approved by Thrombosis Committee and ratified by Tim Nokes - Consultant Haematologist

Last Approval	**Due for Review**
January 2016	Jan 2019

PHNT is committed to creating a fully inclusive and accessible service.

Making equality and diversity an integral part of the business will enable us to enhance the services we deliver and better meet the needs of patients and staff.

We will treat people with dignity and respect, actively promote equality and diversity, and eliminate all forms of discrimination regardless of (but not limited to) age, disability, gender reassignment, race, religion or belief, sex, sexual orientation, marriage/civil partnership and pregnancy/ maternity.

An electronic version of this document is available on the Trust Documents Network Share Folder (G:\TrustDocuments). Larger text, Braille and Audio versions can be made available upon request.

Standard Operating Procedures are designed to promote consistency in delivery, to the required quality standards, across the Trust. They should be regarded as a key element of the training provision for staff to help them to deliver their roles and responsibilities.

Plymouth Hospitals NHS
NHS Trust

Venous Thromboembolism (VTE) Prevention

Standard Operating Procedure

1 Purpose and Scope

Venous Thromboembolism (VTE) is a significant cause of death in hospital inpatients and treatment of non-fatal symptomatic VTE and related long-term morbidities is associated with considerable reduction in quality of life and cost to the health service. However, UK studies previously identified that over 70% of patients assessed as having a medium or high risk of developing VTE were not provided with preventative treatments to reduce the risk (NICE clinical guideline number 92, January 2010).

VTE is the collective name given to clots in veins. Clots usually develop in the large veins of the leg or pelvis (deep vein thrombosis – DVT) or can be found in the deep veins of the upper limbs and rarely other organs e.g. Cerebral veins or intra-abdominal veins. Pulmonary embolism (PE) is the name given to a clot in the lungs. PE usually occurs when a clot breaks off from a deep leg vein and travels to the lungs, causing a potentially life-threatening condition.

DVT can be life threatening when it occurs in an unusual site, but can also predispose to chronic changes in the legs, causing permanent swelling, varicose veins, poor skin condition (often with discoloration) and eventually chronic ulceration. This is known as post thrombotic syndrome, occurring in approximately one third of patients and caused predominantly by damage to valves in leg veins from the DVT. It can be prevented in 50% of cases by the application of appropriate compression hosiery (see protocol for VTE management).

It has been recognised for some time that VTE occurs in hospital inpatients. There are many known risk factors for thrombosis, including personal factors (previous VTE, malignancy, obesity, immobility/inactivity) but also acute ill health causing hospitalisation as a medical or surgical patient, or procedural risk factors (general anaesthesia, surgery). Therefore, the majority of patients admitted to hospital have an increased risk for VTE. Acknowledging this fact is very important, so that a risk assessment for VTE is undertaken as soon as possible after admission.

Research suggests that the risk for VTE extends for at least three months following discharge from hospital *(million Women study).*

It cannot be predicted who will develop a VTE whilst a hospital inpatient and it is obviously impractical to scan individual patients regularly to detect clot formation. Hence risk assessment is paramount, so that those found to be at risk for VTE according to validated risk factors, may receive targeted Thromboprophylaxis (TP) in order to reduce their risk for VTE whilst an

inpatient. TP may be extended out of hospital in those deemed to have continuing high risk once discharged *(NICE, CG 92).*

The purpose of this SOP is to enable healthcare practitioners to identify patients at risk of developing VTE and select the appropriate treatment (TP) to reduce the associated mortality and morbidity associated with this disease.

Definitions

- **Venous thromboembolism (VTE)** - A condition in which a blood clot (thrombus) forms in a vein. It most commonly occurs in the deep veins of the legs; this is called deep vein thrombosis (DVT). The thrombus may dislodge from its site of origin to travel in the blood – a phenomenon called embolism. Usually the embolism occurs in the lung, called pulmonary embolism (PE) *(NICE, CG 92. 2010).*
- **Venous thromboembolism risk assessment** – Is a tool to identify patients at risk of developing a VTE. This assessment is based on a combination of the condition of the patient and the procedure for which the patient is admitted and on any predisposing risk. It is combined with an assessment of the risk for bleeding. In England, it is mandated to use the DH risk assessment tool.
- **Thromboprophylaxis (TP)** – Relates to the intervention used to prevent the formation of VTE by non-mechanical (anticoagulant) or mechanical means, depending on the risk for bleeding,
- **Non-mechanical (pharmacological) VTE prophylaxis** – is the use of blood thinning drugs to reduce the risk of clots forming (usually enoxaparin or rivaroxaban in PHNT).
- **Mechanical VTE prophylaxis** – Is the use of mechanical pressure devices on the legs, to improve venous blood return to the heart. It includes antiembolic stockings, intermittent pneumatic compression devices and foot impulse devices.
- **Anti-thrombotic activity** - Early mobilisation and maintaining adequate hydration are important in maintaining good venous return from lower limbs and reducing thrombosis risk generally. Regional anaesthesia also has a part to play in reducing VTE
- **Anti-embolic stockings** – Graduated compression stockings have been shown to be effective in increasing the velocity of femoral vein blood flow.
- **Venous Foot-pumps** – A boot placed over the foot, powered by pneumatic compression, increasing venous return from the plexus of the foot.
- **Intermittent pneumatic compression** – A sleeve fitted over the calf, powered by pneumatic compression, which increases venous return by physically causing compression of the calf veins.
- **Doppler assessment** – A test used to determine the presence or absence of venous and arterial thrombotic disease.

Regulatory background

The DH VTE risk assessment model (which is identical to that in the NICE, CG 92 document) is the tool, which is mandated by the DH for use as risk assessment of all hospital inpatients.

The 2012/13 NHS Litigation Authority Risk Management Standards for NHS Trusts providing acute services, sets expectations for the prevention and management of the risk of VTE.

Key Duties

Medical Director

As the executive lead for managing VTE risk across the Trust, the Medical Director is responsible for ensuring that appropriate arrangements are established for the prevention and management of VTE. This will include ensuring the establishment and maintenance of the Thrombosis Committee and the appointment of an appropriate clinician as the lead for thrombosis within the Trust.

Thrombosis Committee and Trust Lead Clinician for thrombosis

The Thrombosis Committee and Lead Clinician are responsible for:

- Ensuring that the procedures set out in this SOP are up to date and followed across the Trust, for all relevant patients.
- Seeking assurance from clinical areas that VTE risk assessments are being carried out properly and that clinically correct treatment decisions are implemented as a result (appropriate TP).
- Receiving monitoring reports from the VTE prevention team on these standards, also to include VTE outcome metrics.
- Overseeing the education of patients and staff on matters concerning VTE prevention.

Senior Doctors (Risk assessment & appropriate TP)

It is the responsibility of all senior doctors looking after hospitalised patients, to ensure that they are risk assessed and receive appropriate TP.

A VTE risk assessment should be carried out for all patients, in all clinical areas where they are admitted for treatment. The only exceptions are:

- Children under 18 years old
- Day case patients who as a cohort, have such low risk for VTE that they do not require individual risk assessment for VTE (see cohort list for generic low VTE risk according to this SOP - Appendix 1) and generally complying with the national policy for such low risk groupings or agreed with the Trust's Medical Director. This will be updated regularly, in line with national guidance and local experience.

Admitting clinician

Is responsible for ensuring that:

- Patients are informed of and understand the need for a risk assessment to be carried out and are able to give informed consent for any subsequent treatment to be given.
- A VTE risk assessment is carried out at the earliest opportunity, and no later than 24 hours after the patient has been admitted for all but elective surgery.
- For elective surgery patients, a VTE risk assessment may be carried out and documented at the pre-admission assessment clinic in the patient drug chart or surgical pathway document
- For all inpatients, a reassessment is carried out at least every 72 hours. For high risk patients, including ICU, the reassessment period should be 24 hours.
- Prophylactic prescriptions (mechanical or pharmacological) are applied and the treatment is recorded in the appropriate section on the prescription chart or in the patient's record, particularly when there is deviation from the guidance on the risk assessment document.
- Responsibility for completing the risk assessment can be delegated to suitably qualified clinical staff (doctor, nurse or pharmacist).

Hospital VTE Prevention Team

The VTE Prevention Team is responsible for:

- Investigating all VTE events arising in Trust inpatients and recently discharged patients (within 90 days), using root cause analysis (RCA) and approving action plans to address any procedural weaknesses identified. Root Cause Analysis (RCA) will be coordinated in real time as the VTE events occur, by the VTE CNS.
- Providing real-time feedback to clinicians of VTE events occurring in their patients, whenever these satisfy the criteria for HAT events. Identifying trends or recurring lack of risk assessment or appropriate TP and addressing these with specific senior Clinicians.
- Ensuring that a Datix report is generated for all cases where inappropriate TP results in a hospital acquired thrombosis (HAT).
- Monitoring compliance with this SOP across the Trust and reporting the results of this monitoring to the Thrombosis Committee.

The VTE Prevention Team should also ensure that:

- VTE educational information remains high profile within the Trust, for example on patient and public information screens, and through availability of general and VTE specific information literature. Specific information from individual departments is available, e.g. Orthopaedics, Gynaecology, Obstetrics.

- All healthcare workers caring for patients have access to education in relation to VTE risk and prevention.

Monitoring and assurance

VTE risk assessment will be uploaded to UNIFY from e-discharge on a monthly basis. Day-case exclusions will also be included on a monthly basis. It is the duty of the VTE Prevention Team to monitor this. The VTE risk assessment figures will be made available to the CQUINs initiative, working with the Trust's Performance team.

Application of appropriate TP will be audited by the VTE Clinical Nurse Specialist (CNS) using the Meridian audit tool. The results for appropriate TP will be disseminated to senior Clinicians and managers of the various ward areas, to the Medical Director (Executive lead for VTE) and the Associate Medical Director for Quality.

Repeat offenders in terms of inappropriate TP, including missed doses of enoxaparin or poor risk assessment figures, will be addressed by the clinical lead for VTE prevention with the support of the VTE link nurses. If they continue to offend, they will be flagged to the Medical Director.

The results of the monitoring undertaken, including any recommendations and actions to address issues arising, will be reported by the Clinical Lead and VTE CNS to the Thrombosis Committee at every meeting. Ongoing review and implementation of recommendations and actions will be overseen by the Committee and will be managed in accordance with the severity and priority of the issue arising.

The Medical Director as VTE executive lead will deliver reports on VTE assessments and appropriate TP to the Trust Board as required.

Monitoring of training will be in accordance with the Workforce Induction and Training Policy.

2 Procedure to Follow

2.1 Process of risk assessment for identification of patients at risk of VTE

2.1.1 Tools for use in and timing of risk assessment:

The risk assessment for VTE should be completed, using the DH risk assessment tool (currently DH Gateway reference 10278, 2010). This tool is incorporated into the Trust's clinical records, as follows:

- The in-patient prescription (drug) chart (page 2), see Appendix 2, as soon as possible after admission but definitely within 24 hours, for all patients.

- Surgical pathway documents for elective Orthopaedics and many other surgical patients are usually completed in pre-operative assessment clinic and then the drug chart should be ticked to acknowledge this. Higher risk patient groups (Obstetrics & Gynaecology (see Antenatal Guidelines no.38 and Intrapartum Guidelines no.19) and Critical Care

(Update On Venous Thromboembolism (VTE) Prophylaxis on Pencarrow and Penrose ICU post NICE clinical guideline 92)), using adapted risk assessment tools, as soon as possible after admission but certainly within 24 hours.

For all inpatients, a reassessment is carried out at least every 72 hours. For high risk patients, including ICU, the reassessment period should be 24 hours.

A separate form is used by The Emergency Department for patients presenting with a fractured lower limb who are put into plaster or other cast. The form is then used when reassessing patients in fracture clinic and on the orthopaedic wards for patients in plaster cast (Appendix 5).

2.1.2 Documentation of risk assessment

Whatever tool is being used, the fact that VTE risk assessment has taken place should be documented within the drug chart (Appendix 2) and the e-discharge proforma.

Directorates and departments should decide who assesses the risk, although anyone can undertake this i.e. nurse or junior doctor in surgical pre-assessment clinic or usually a junior doctor in the AMU, SAU or other wards.

2.2 Clinical management of patients at increased risk for VTE

2.2.1 Specific methods and procedures

All patients assessed by the Trust to be at risk for VTE will be considered for thromboprophylaxis (TP).

The TP methodology (anticoagulant, mechanical or a combination of both) will be started as soon as possible after the decision is made. The decision on the type of TP will be evident from the risk assessment, or discussed immediately post surgery.

The following rules apply:

- Anticoagulant TP is not used if there is an increased risk of bleeding, either indicated from risk assessment tool or professional judgement e.g. bleeding following surgery.
- TP application must take into account any contraindications to pharmacological or mechanical therapies. Contraindications must be recorded on the prescription chart and in the patient's healthcare record if not otherwise obvious from prescription chart.
- In general, all surgical patients with VTE risk should receive mechanical TP using anti-embolism stockings (AES). In certain patient groups (Orthopaedics and General Surgery) intermittent pneumatic compression devices (IPC) may also be prescribed. NICE gives no advice on what type of mechanical TP should be used for surgical patients (see NICE, CG 92). Other evidence suggests some increased benefit for IPC over AES in Orthopaedic and General Surgery.
- All patients who have risk factors for VTE will be prescribed Low Molecular Weight Heparin (LMWH) (Enoxaparin, generally 40mg) as

soon as possible after admission, then daily. This should be administered at the next appropriate drug round and must be within 24 hours of admission **unless this is contraindicated**, according to the risk for bleeding within the risk assessment table or from clinical judgement. This will be documented in the surgical sign-out document for surgical patients.

- The renal function should either be checked or a result within the preceding three months, can be used. Dose of LMWH should be adjusted according to renal function and body weight as stated on page 3 of the drug chart.
- Pre-operative enoxaparin should not be given to patients unless this has been specifically requested and prescribed by the admitting consultant or one of their team.

- The dose of enoxaparin should be 40mg for TP, (unless e-GFR <30ml/min or weight <50kg, where dose should be 20mg **or** 40mg bd when weight >120 kg). This is stated on page 3 of the drug chart.
- Elective hip and knee replacement surgery patients (including re-do surgery) should be prescribed rivaroxaban 10mg daily, according to the Orthopaedic protocol and continued to 5 weeks post operatively if relevant risk factors apply.
- Patients who are at risk of VTE but who have an absolute contraindication to LMWH (usually a risk of bleeding as described by the bleeding risk assessment on prescription chart or allergy or recent Heparin induced thrombocytopenia [HIT]) must be prescribed AES. Stroke patients are excluded from the use of AES. Alternatives such as venous foot pumps (VFP) or intermittent pneumatic compression (IPC) may be applied in certain cases – specifically major orthopaedic and general surgery.

Following review of VTE risk whilst an inpatient, the treatment should be adjusted accordingly.

Treatment should continue at least until the patient is back to previous mobility.

The need for extended thromboprophylaxis (usually for 4 or 5 weeks), should be considered in certain cases. In particular, this should be considered for high-risk surgical procedures (hip & knee replacement surgery, hip fracture, major surgery in the abdomen or pelvis for cancer). These standards are stated in NICE, CG92.

2.2.2 General methods and procedures

The following good practice should be adopted where possible:

- Patients should be adequately hydrated.
- Epidural or spinal anaesthesia should be adopted wherever possible, as this has also been shown to reduce the risk for VTE.

- Patients should be encouraged to sit with their legs up when resting.
- Patients should be mobilised as early as possible or shown how to exercise their legs if they require bed rest.
- No TP is required for low risk patients, according to risk assessment tool.

2.2.3 Risk management of potential complications

Bleeding or risk of bleeding requires careful consideration whenever pharmacological TP is being used.

Deteriorating or improving renal function also needs to be observed as this may affect the safety of LMWH (Enoxaparin) Rivaroxaban or other direct oral anti-coagulants

Always consider the condition of the skin or pain in association with mechanical methods for delivering TP (see NICE CG 92).

Patients should be counselled about the risk for VTE in spite of effective TP, particularly after discharge from hospital. They require education regarding the signs to watch out for that might indicate that VTE has occurred.

2.3 Healthcare workers training and competencies

It is the responsibility of the hospital VTE Prevention Team to ensure all healthcare workers caring for patients, have access to education in relation to VTE risk prevention. This training is mandatory for all clinicians with patient contact as identified in the Trust's Training Needs Analysis. Generally, the specific training needs in terms of content, will be identified by the Trust VTE Clinical Nurse Specialist (VTE CNS) and clinical lead.

This should be organised through specific, formal, education sessions tailored to the audience appropriately, e.g. online mandatory training sessions for clinical staff (nurses and senior medical clinicians). These online mandatory training sessions include a questionnaire to assess learning at the end of the sessions. Formal teaching of junior doctors is undertaken as a core part of the foundation programme, grand rounds and medical student teaching slots. Link nurses for VTE prevention have a very important role in keeping VTE prevention measures high profile on the wards.

It could be argued that all 'clinicians' have a responsibility to educate patients regarding this important issue, which has the potential to affect the majority of people admitted to hospital. It is very important to raise the profile of this issue in patients and the general public.

3 Document Ratification Process

The design and process of review and revision of this procedural document will comply with The Development and Management of Trust Wide Documents.

The review period for this document is set as three years from the date it was last ratified, or earlier if developments within or external to the Trust indicate the need for a significant revision to the procedures described.

This document will be approved by the Thrombosis Committee and ratified by the Medical Director.

Non-significant amendments to this policy document may be made, under delegated authority from the Medical Director, by the nominated author. These must be ratified by the Medical Director and should be reported, retrospectively, to the Thrombosis Committee.

Significant reviews and revisions to this policy will include a consultation with senior clinicians in the Trust and Thrombosis Committee. All directors of the Trust will be invited to contribute to proposed revisions of the policy. For non-significant amendments, informal consultation will be restricted to directors and clinicians who are directly affected by the proposed changes.

Dissemination and implementation

Following approval and ratification, this procedural document will be published in the Trust's formal documents library and all staff will be notified through the Trust's normal notification process, currently the 'Vital Signs' electronic newsletter.

Document control arrangements will be in accordance with The Development and Management of Trust Wide Documents.

The document author(s) will be responsible for agreeing the training requirements associated with the newly ratified document with the Medical Director and for working with the Trust's training function, if required, to arrange for the required training to be delivered.

4 Reference material

The following documents are referred to in this policy, or provide additional sources of reference material:

Guidance about compliance. Essential standards of quality and safety. **Care Quality Commission**, March 2010

NHSLA Risk Management Standards for NHS Trusts providing Acute, Community or Mental Health & Learning Disability Services and non-NHSProviders of NHS Care, 2012/13. **NHS Litigation Authority**, January 2012.

In addition, the following references should be considered:

- DH Report of the independent expert working group on the prevention of venous thromboembolism in hospitalized patients. March 2007. Department of Health.
- Nice:Clinical Guideline 92: Reducing the risk of venous thromboembolism (deep vein thrombosis and pulmonary embolism) in patients admitted to hospital.
- Anderson F, Zayaruzny M, Heit J, Fidan D, Cohen A. Estimated annual

numbers of US acute care hospitalised patients at risk for venous thromboembolism. American Journal of Hematology 2007 (doi:10.1002/ajh.20983)
- Sweetland S, Green J, Liu B, Berrington de González A, Canonico M, Reeves G, Beral V; Million Women Study collaborators. Duration and magnitude of the postoperative risk of venous thromboembolism in middle aged women: prospective cohort study. *British Medical Journal* 2009 Dec 3;339:b4583. doi: 10.1136/bmj.b4583.
- Bergmann JF, Cohen AT, Tapson VF, Goldhaber SZ, Kakkar AK, Deslandes B, Huang B, Anderson FA Jr; ENDORSE Investigators. Venous thromboembolism risk and prophylaxis in hospitalised medically ill patients. The ENDORSE Global Survey.Thromb Haemost. 2010 Apr;103(4):736-48. Epub 2010 Feb 2

Cohort List Low VTE Risk Score | Appendix 1

Day case groups to be excluded from VTE risk assessment documentation:

Ambulatory care pathways:

1. Chemotherapy

2. Haemodialysis attending as day cases

3. Day case interventions (no General Anesthetic):
   - Transfusion of blood and products.
   - Infusions e.g. Biphosphonates, Iloprost, IVIg
   - Cardiac procedures: Coronary Angiograms
   - Tapping effusions
   - Joint injections
   - Others e.g. Venesection

4. Endoscopy (+/- biopsy)

5. Minor surgical procedures (local anaesthetic, regional, sedation – not General anaesthetic), <90 minutes duration total
   - Ophthalmological
   - Non-cancer ENT
   - Non-cancer plastic surgery: eg Carpel tunnel release, Dupytrens release, Trigger finger repair
   - Non-cancer OMF & dental surgery
   - Orthopaedic eg hand ops

- Other similar procedures:
  - Urological eg Flexible cystoscopy,
  - Dermatological eg removal of skin lesions, enucleation of cysts
  - Radiology-guided biopsies

Adult Drug Prescription and Administration Record	Appendix 2

Risk Assessment for Venous Thromboembolism (VTE) for ALL adult patients admitted to hospital

(For pregnancy related admission see separate guidelines) **Risk assessment completed at Pre-assessment** ☐

Step 1

Assess mobility for all patients admitted to hospital - tick one box	✓	Action
Surgical patient		Assess for thrombosis risk and bleeding risk (Step 2 and 3)
Medical patient expected to have ongoing reduced mobility relative to normal state		
Medical patient **NOT** expected to have ongoing reduced mobility relative to normal state		VTE prophylaxis not required Go to Step 4

Step 2

Assess thrombosis risk - tick all that apply (✓) **Any tick should prompt thromboprophylaxis**

Patient related	First	72hr		First	72hr
Active cancer or cancer treatment			Use of hormone replacement therapy		
Age >60			Use of oestrogen-containing contraceptive therapy		
Dehydration			Varicose veins with phlebitis		
Known thrombophilias			Critical Care admission		
Obesity (BMI >30kg/m²)			Significant medical comorbidities (eg. heart disease, metabolic, endocrine or respiratory pathologies; acute infectious disease; inflammatory conditions)		
Personal history or first-degree relative with a history of VTE					
Admission related					
If total anaesthetic + surgery time > 90 minutes			Significant reduction in mobility for 3 days or more		
If surgery involving pelvis or lower limb with a total anaesthetic + surgical time > 60 minutes			If acute surgical admission with inflammatory or intra-abdominal condition		

Step 3

Assess bleeding risk (re-assess regularly) - tick all that apply (✓)

If bleeding risks identified pharmacological prophylaxis may be contra-indicated, discuss with senior doctor before prescribing

Patient related	First	72hr		First	72hr
Active bleeding			Thrombocytopenia (platelets < 50×10^9/l)		
Acquired bleeding disorders (e.g. acute liver failure)			Uncontrolled systolic hypertension (> 230 mmHg)		
Concurrent use of anticoagulants (e.g. warfarin with INR >2, therapeutic dose of enoxaparin or rivaroxaban)			Untreated inherited bleeding disorders (such as haemophilia or Von Willebrand's disease)		
Acute stroke (< 3 months ago or risk of CNS bleeding)					
Admission related					
Neurosurgery, spinal surgery or eye surgery (except cataract surgery)			Lumbar puncture/epidural/spinal anaesthesia within the previous 4hrs or expected within the next 12hrs (If pharmacological prophylaxis is indicated clearly document timing of dose and/or start date)		
Other procedure with high bleeding risk					

Step 4

Assessment completed by (can be any trained healthcare worker)

Assessment	Signature	Name (PRINT)	Grade	Bleep	Date
First					
72 hour					

Step 5

Consider contra-indications tick if present (✓)	First	72hr
Contra-indications to pharmacological prophylaxis (consider anti-embolism stockings)		
Contra-indications to anti-embolism stockings (see below)		

Peripheral arterial disease; Peripheral arterial bypass grafting; Recent skin graft; Cardiac failure; Known Allergy; Peripheral neuropathy; Severe dermatitis or gangrene; Severe leg oedema; Leg deformity

Step 6

Guidelines used to risk assess: Surgical ☐ Orthopaedic ☐ Obstetric ☐ Other.....(specify)

Record treatment decisions tick all that apply (✓)	First	72hr		First	72hr
None - cross off enoxaparin from chart (drug 1)			Unfractionated Heparin (UFH)		
Enoxaparin			Rivaroxaban		
Intermittent pneumatic compression or footpumps			Anti-embolism stockings		

Step 7

Write prescription

Ensure selected thromboprophylaxis is prescribed at an appropriate dose for the patient
Consider eGFR and body weight if applicable (see 'Enoxaparin VTE Dosing Guidance' on opposite page)

Monitoring patients on enoxaparin

Heparin Induced Thrombocytopenia (HIT): For inpatients check baseline platelet count and then every 2-4 days until day 14. As a minimum for extended prophylaxis post-discharge check once between 4-7 days and again after 10-14 days of enoxaparin treatment. If platelets fall by more than 50% of baseline stop enoxaparin and discuss with haematology.

Hyperkalaemia: monitor serum potassium in at risk patients (those with diabetes mellitus, chronic renal failure, pre-existing metabolic acidosis or taking potassium sparing drugs) before starting treatment and recheck regularly

All patients to be periodically reassessed during inpatient stay as risk factors or contraindications may change.

Review assessment at 24 hrs then reassess every 72 - 96 hrs or, as or when patient's condition changes.

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RISK ASSESSMENT FOR VENOUS THROMBOEMBOLISM AND BLEEDING

VTE Risk factors	Yes (Tick)	No (Cross)
Estimated duration of anaesthesia and surgery > 60 minutes		
Active cancer or cancer treatment		
Age > 60 years		
Critical care admission		
Dehydration		
Known thrombophilia		
Obesity (BMI > 30 kg/m^2)		
One or more significant medical co-morbidities (e.g. heart disease, metabolic, endocrine or respiratory pathologies, acute infectious diseases, inflammatory conditions)		
Personal history or 1st degree relative with a history of DVT or PE		
Use of HRT or oestrogen containing contraceptive therapy		
Varicose veins with phlebitis		
Bleeding Risk factors	**Yes (Tick)**	**No (Cross)**
Active bleeding		
Acquired bleeding disorders (such as acute liver failure)		
Concurrent use of anticoagulants known to increase the risk of bleeding (e.g. warfarin with INR > 2)		
Lumbar puncture / spinal / epidural performed within previous 4 hours		
Acute stroke		
Thrombocytopaenia (platelets < 75)		
Uncontrolled systolic hypertension (230/120 mmHg)		
Untreated inherited bleeding disorders (e.g. Haemophilia or Von Willebrand's disease)		
Notes:		

Risk Assessment for Venous Thromboembolism

TED Size	Calf Length	Right cm	Left cm

Thrombosis Risk factors	Yes	No
Age > 60 years		
Active cancer / cancer treatment (including tamoxifen)		
Critical care admission		
Known thrombophilia		
Obesity (BMI > 30 kg/m^2)		
Any significant medical comorbidity (such as heart disease, metabolic, endocrine, acute infectious diseases or inflammatory conditions)		
Use of oral contraceptive therapy / HRT		
Pregnancy or up to 6 weeks post partum		
Estimated duration of anaesthesia & surgery > 90 mins (> 60 mins if surgery involves pelvis or lower leg)		
Personal history or 1st degree relative with a history of DVT / PE		
Varicose veins with phlebitis		

Bleeding Risk factors	Yes	No
Active bleeding		
Acquired bleeding disorders (such as acute liver failure)		
Acute stroke / TIA in previous month		
Blood pressure > 220mm Hg systolic or 120 mm Hg diastolic		
Concurrent use of anticoagulants (e.g. warfarin)		
Haemophilia / Von Willebrands or other known bleeding disorder		
Known platelet count < 75		
Lumbar puncture / spinal / epidural performed in previous 4 hours		
Neurosurgery / spinal surgery planned		
Other procedure planned with high bleeding risk		

Nursing Evaluation / Notes:

Assessment completed by:

Name: ..... Sig: .....

Designation: .....Date: .....Telephone:.....

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This document is only used for patients having total hip and knee replacements. All other procedures are assessed on the Trust wide document.

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Plymouth Hospitals NHS
NHS Trust

VENOUS THROMBO-EMBOLISM RISK ASSESSMENT V2

- To be completed by **all patients** immobilised in a lower limb cast / boot -

PATIENT'S NAME: _____ **UNIT NUMBER:** _____

DATE: _____ **D.O.B:** _____

Please tick every box relevant to yourself (the patient)

PATIENT DETAILS	Score
Age ≥ 60 years	1
Very overweight (BMI ≥ 30kg/m2)	2
Unable to walk before accident / injury	2
CURRENT MEDICATION	**Score**
Oral contraceptive pill (birth pill)	1
Hormone replacement therapy (HRT)	1
FAMILY HISTORY	**Score**
Known family history of leg vein clots (deep vein thrombosis) in close family (brother, sister, father, mother)	3
MEDICAL HISTORY	**Score**
Varicose veins	1
Heart disease / lung disease / bowel disease / hormone disease or other long term medical condition requiring treatment	1
Abdominal surgery (tummy) in last 6 weeks	2
Active cancer	3
Previous history of leg vein clots (deep vein thrombosis)	3
Previous history of lung clots (pulmonary embolus)	3
Pregnant or within 6 weeks of childbirth	3
Complex lower limb surgery or pelvic fracture in last 6 weeks and advised by surgeon to have prolonged DVT prophylaxis	3
Known blood clotting disease (Thrombophilia) Please discuss with Dr who may contact a haematologist	
Total score:	
Signature of patient/clinician	

SCORE	RECOMMENDATION
0 - 2	Mobilisation as able;
3 or more	**Enoxaparin 40mg DAILY until end of full immobilisation of lower limb in cast / boot then reviewed on an individual basis** depending on mobility, refer to Guidelines for VTE prophylaxis in orthopaedics and trauma

Notes:
1. If patient has long standing blood disease, consult haematologist.
2. If patient is already receiving anticoagulant treatment, continue as per guidance – Guidelines for VTE prophylaxis in orthopaedics and trauma.

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Orthopaedic Care Pathway (page 9)	Appendix 6

RISK ASSESSMENT FOR VENOUS THROMBOEMBOLISM AND BLEEDING

VTE Risk factors	Yes (Tick)	No (Cross)
Estimated duration of anaesthesia and surgery > 60 minutes		
Active cancer or cancer treatment		
Age > 60 years		
Critical care admission		
Dehydration		
Known thrombophilia		
Obesity (BMI > 30 kg/m^2)		
One or more significant medical co-morbidities (e.g. heart disease, metabolic, endocrine or respiratory pathologies, acute infectious diseases, inflammatory conditions)		
Personal history or 1^{st} degree relative with a history of DVT or PE		
Use of HRT or oestrogen containing contraceptive therapy		
Varicose veins with phlebitis		
Bleeding Risk factors	**Yes (Tick)**	**No (Cross)**
Active bleeding		
Acquired bleeding disorders (such as acute liver failure)		
Concurrent use of anticoagulants known to increase the risk of bleeding (e.g. warfarin with INR > 2)		
Lumbar puncture / spinal / epidural performed within previous 4 hours		
Acute stroke		
Thrombocytopaenia (platelets < 75)		
Uncontrolled systolic hypertension (230/120 mmHg)		
Untreated inherited bleeding disorders (e.g. Haemophilia or Von Willebrand's disease)		

Notes: